

# *Dutton* STEAM GENERATORS

ESPECIALLY DESIGNED AND ENGINEERED FOR

## GENERAL HEATING and STEAM PROCESSING

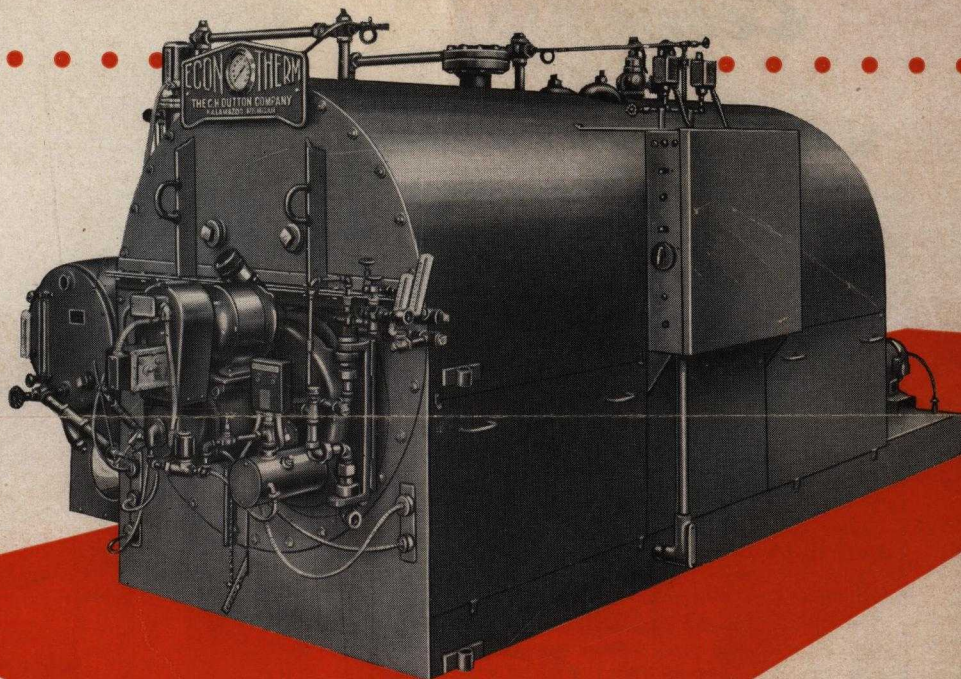
*Dutton*  
**EconoTHERM**

- Complete Packaged Steam Generator — No Extras To Buy
- Entirely Automatic
- Oil or Gas Fired
- No High Chimney or Stack Required
- Large Reserve Steam Space
- Clean — Quiet Running
- Maximum Power in Minimum of Space
- 80% Thermal Efficiency — Big Fuel Saver
- Sizes up to 250 HP

The Dutton Econotherm is a completely self contained steam generator that comes to you ready for firing — connections to plant piping and wiring only are required. Boiler, Burner, Induced Draft Fan and Boiler Feed Pump System complete with all equipment and controls for safe, automatic operation are piped, wired, assembled and mounted on the streamlined insulated steel casing. No foundation is required other than a level non-inflammable floor. Electronic controls, relays, switches, etc., are wired into control panel mounted on boiler — no installation expense except making service connections.

Dutton exclusive design features, years ahead of others, guarantee 80% overall operating efficiency. Off-center firing creates perfect water circulation, uniform temperature throughout the shell, and steady water gauge impossible to obtain with center fired units. The arrangement of tube area guarantees dry steam at maximum firing, and big steam space.

FOR MORE COMPLETE INFORMATION ON THE ECONOTHERM ASK FOR BULLETIN EC-74



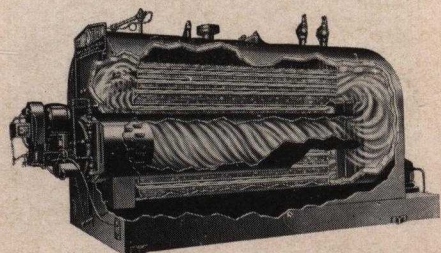
Rotary combustion in Ni-chrome firebox whirls the burning gases through the furnace with great turbulence, and scrubbing every inch of surface in transmitting the last BTU to the surrounding water. The Econotherm steams up in less than 10 minutes from a cold start.

Induced draft fan assures fast, noiseless, odorless safe burning of fuel in three passes through the boiler shell. It mixes the fuel more thoroughly with air which gives high CO<sub>2</sub> reading and low stack temperature.

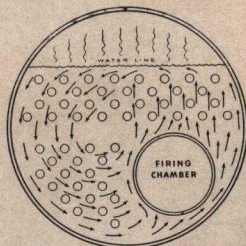
Econotherm boiler shells have 5 square feet or more of water heating surface per rated horsepower — develop top capacity without overfiring, with assurance of lifetime service without expensive maintenance — shells have large reserve steam space.

Dutton Turbine Type Pump feeds water to boiler automatically, drawing from the condensate and make-up water receiver. The water level magnetic control operates on  $\frac{3}{4}$ " drop in the boiler, feeding small charges at frequent intervals. No big slugs of cold water kill steam pressure.

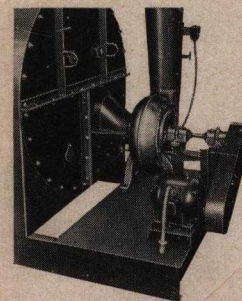
Dutton design and Dutton construction have been ahead of the field for over 70 years. Continuous development and research keep Dutton ahead now. When you buy a Dutton, you know that you are getting the newest and best in proved equipment.



Cut-away view shows whirling hot gases passing full length of boiler three times to extract more heat from the fuel. Note large reserve steam space — height of water line above hot firing tube insures safe operation.



Off-center firing creates positive water circulation, uniform temperature throughout the shell, fast steaming, dry steam, and steady water line with no surging.



Rear view showing Induced Draft Fan and Vent pipe assembly — guarantees clean, odorless, noiseless efficient combustion.



# Dutton

## EconoMIST

### SELF-CONTAINED PORTABLE HORIZONTAL RETURN TUBULAR TYPE

The Dutton Economist is a highly efficient horizontal return tube type boiler with insulated and refractory lined walls locked into a reinforced steel casing. The Economist is assembled as a unit on skids and is shipped from the factory ready for firing on arrival. Not to be confused with conventional short firebox bricked or water leg types, the Economist provides higher efficiency and structural strength by giving you:

- 1 — Saving in fuel through improved shell design and double size full length, high bricked firebox. Products of combustion are consumed before reaching tubes, producing a cleaner, hotter fire and virtually eliminating smoke and soot.
- 2 — Tubes are removed from intense flame and heat of firebox, reducing liming, cracking and leaks caused by violent expansion and contraction always present with short firebox type boilers.
- 3 — High temperature brick lined walls, producing an incandescent firebox impossible to obtain in water leg or Scotch type boilers. Faster steaming and longer steam carry over, with much less fuel consumption.
- 4 — Special insulating block backing up the brick, exclusive with Dutton is equal to 20" of firebrick wall. Prevents heat loss through casing.

#### BIG SAVING IN COST OF STEAM THROUGH THESE FEATURES

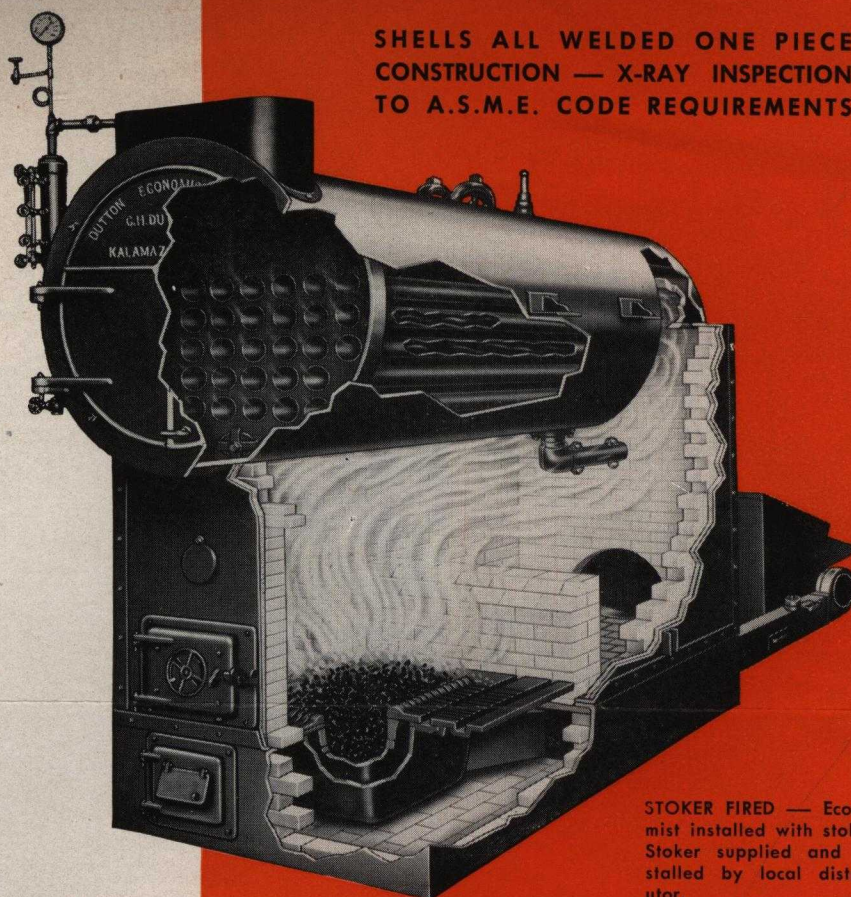
Greater Combustion Space  
Less Heat Loss Through Furnace Walls  
Faster Steaming and Longer Carry-over  
Lower Operating Costs  
Lower Installation Expense

No foundation is required other than a level, non-inflammable floor.

Economist Packaged type Steam Generators are furnished complete with Oil, and Gas burners, built-in Combustion Chamber, Boiler Feed Pump System, and all controls for automatic operation — for Processing and Power, Low Pressure Steam, and Hot Water Heating. Shells are built for 125 lbs. S.W.P. unless otherwise specified.

Economists are designed for quick, inexpensive change from one type of fuel to another as fuel conditions demand, a feature which is impossible with Packaged boilers designed for Oil and Gas alone.

SHELLS ALL WELDED ONE PIECE  
CONSTRUCTION — X-RAY INSPECTION  
TO A.S.M.E. CODE REQUIREMENTS



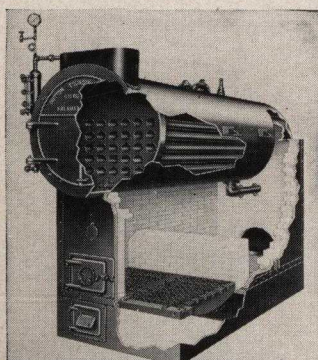
STOKER FIRED — Econo-  
mist installed with stoker.  
Stoker supplied and in-  
stalled by local distrib-  
utor.

**CHOICE OF OIL, GAS, HAND  
OR STOKER FIRING**

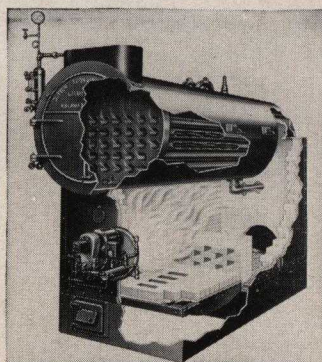
**CONVERTIBLE IN FIELD**

**Sizes Up To 100 Horsepower**

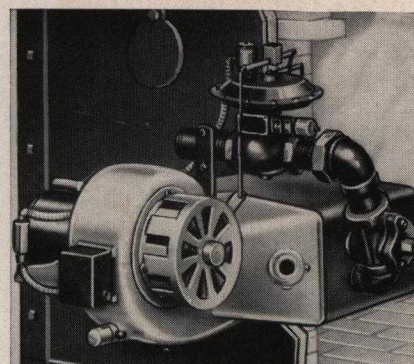
**ASK FOR BULLETINS EC64, EC80 AND SS-61 WHICH  
CONTAIN COMPLETE SPECIFICATIONS**



HAND FIRED — Unit supplied as illus-  
trated with Grates and Bridgwall built  
in.



OIL FIRED — Economist may be had with  
several types of oil burners depending  
on use and fuel available. Shipped with  
or without boiler feed pump system.



GAS FIRED — Gas burner is installed in  
Economist as shown. Furnished with or  
without boiler feed pump system.



# Dutton

## VERTICAL BOILERS

BUILT TO ASME CODE FOR  
100 LBS. WORKING PRESSURE  
UNLESS OTHERWISE ORDERED

SHELLS—ALL WELDED ONE PIECE CONSTRUCTION X-RAY INSPECTED

SIZES 5 to 50 HORSEPOWER

FOR PROCESSING AND  
POWER—LOW PRESSURE  
STEAM AND HOT WATER  
HEATING

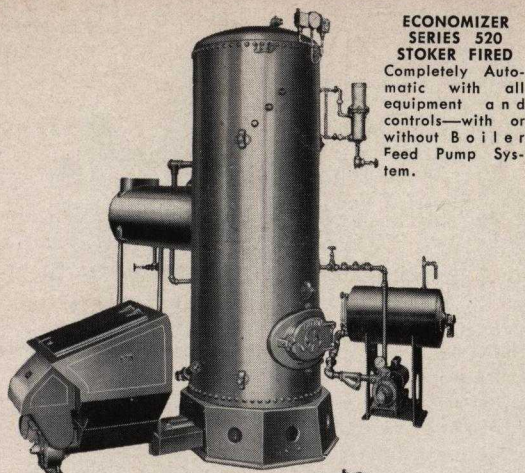
### EconoMIZER

HAND FIRED OR  
FULLY AUTOMATIC

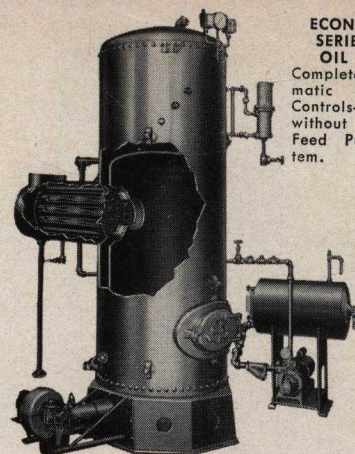
Combines the high firebox and water leg of the tubeless boiler with the efficiency and economy of the horizontal tubular boiler. The horizontal tubular section is an efficient heat exchanger, retarding the flow of gases, transferring the heat effectively to the water, generating steam quickly and giving lower stack temperature. This high operating efficiency means lower fuel cost and greater steam capacity, especially when stoker, oil, or gas fired.

Complete equipment for code operation of each boiler is furnished. Ask for BULLETIN EC-83 which contains complete specifications.

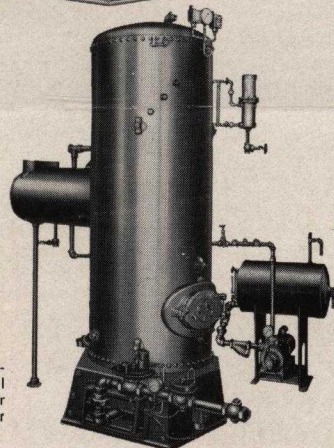
Sizes 10, 15 and 20 HP. carried in stock.



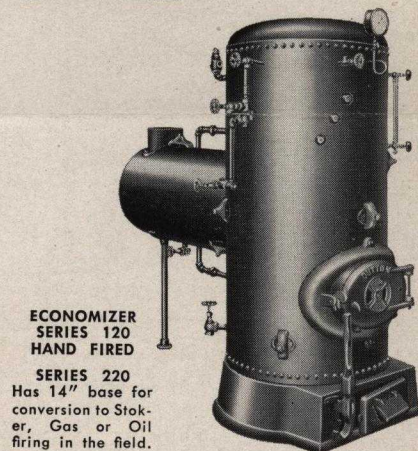
**ECONOMIZER  
SERIES 520  
STOKER FIRED**  
Completely Automatic with all equipment and controls—with or without Boiler Feed Pump System.



**ECONOMIZER  
SERIES 620  
OIL FIRED**  
Completely Automatic with all Controls—with or without Boiler Feed Pump System.



**ECONOMIZER  
SERIES 720  
GAS FIRED**  
Completely Automatic with all Controls—with or without Boiler Feed System.



**ECONOMIZER  
SERIES 120  
HAND FIRED**

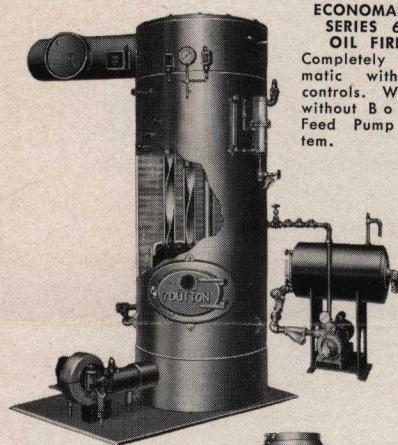
**SERIES 220**  
Has 14" base for conversion to Stoker, Gas or Oil firing in the field.

### EconoMASTER

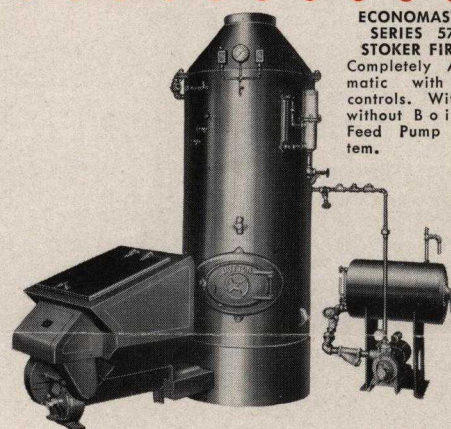
FULL LENGTH VERTICAL  
TUBULAR HAND FIRED  
or FULLY AUTOMATIC

Conventional vertical tubular boiler with deep water leg and high firebox. Furnished complete with equipment and trimmings. Cone shape smoke hood is standard, Flat top hood with side outlet shown in illustrations is supplied only when ordered at extra cost. Ask for BULLETIN EC-84 which contains complete specifications.

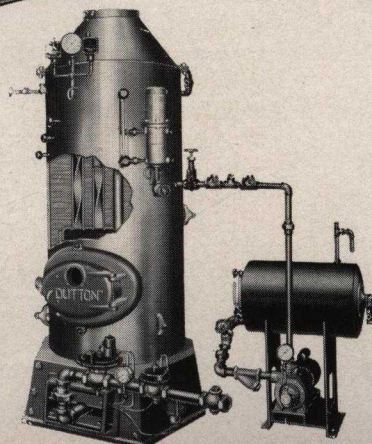
Sizes 5, 10, and 15 HP. carried in stock. Sizes 25, 30 and 50 HP. built on order.



**ECONOMASTER  
SERIES 670  
OIL FIRED**  
Completely Automatic with all controls. With or without Boiler Feed Pump System.



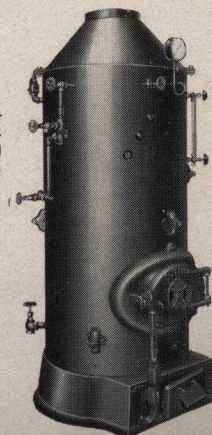
**ECONOMASTER  
SERIES 570  
STOKER FIRED**  
Completely Automatic with all controls. With or without Boiler Feed Pump System.



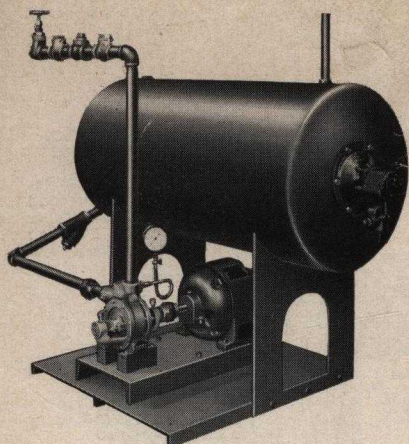
**ECONOMASTER  
SERIES 770  
GAS FIRED**  
Completely Automatic with all controls. With or without Boiler Feed Pump System.

**ECONOMASTER  
SERIES 170  
HAND FIRED**

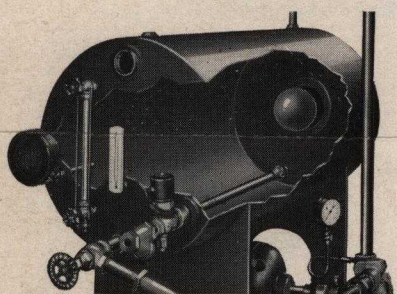
**SERIES 270**  
Has 14" base for conversion to Stoker, Gas or Oil firing in the field.







Dutton boiler feed pump and condensate return system. For boilers 5 to 200 HP and 30 to 150 lbs. pressure. See Bulletins AP41 and AP41-S.



**FEED WATER PREHEATER**

Aquastat controlled to maintain feed water at any desired temperature in receiving tank, saving fuel and production time. Reduces hardness of feed water. Precipitates vegetable and mineral solids which are drained off instead of being fed to boiler.

# Dutton

## EconoFEED BOILER FEED PUMP and CONDENSATE RETURN SYSTEMS

Save 15% in Fuel by Feeding Returned Condensate or Pre-heated Make-up Water to Boiler in Small Charges Automatically — Maintain Uniform Steam and Water Space in Boiler. See Bulletins AP41 and AP41-S.

- Fully Automatic
- Saves Fuel and Labor
- Increases Boiler Capacity and Efficiency
- Complete with All Equipment and Controls
- Protects Boiler from Low Water Damage
- Stops Waste

### THIS EQUIPMENT FURNISHED WITH DUTTON BOILER FEED PUMP SYSTEM

Turbine Type Pump with direct connected motor, mounted on structural steel stand.

Dutton Water Level Pump Control, Low Water Burner Cut-off and Alarm Switch (McDonnell-Miller #150 optional).

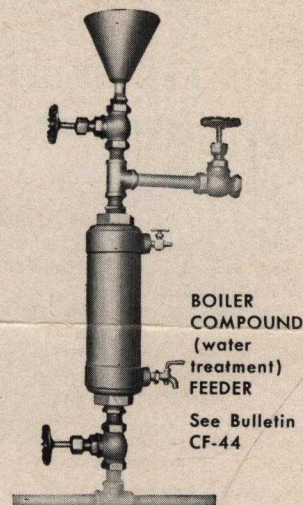
Control Column Blow-down Valve and Nipple.

Magnetic Starting Switch with Overload relay. (Push button starter with motors 1/2 HP and smaller).

Two heavy duty Swing Check Valves, Stop (gate) Valve and Water Pressure Gauge for assembly in feed line.

Vacuum Breaker for Assembly on boiler to prevent flooding when cooling down. Strainer and Shut-off Valve assembled in suction line to pump.

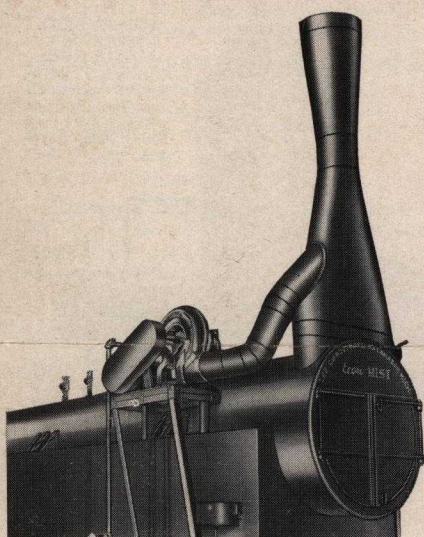
Receiving Tank, vented to atmosphere type, heavy steel, hot galvanized inside and out. Tank fitted as follows: Automatic make-up water feeder with strainer built in, assembled to end of tank. Water gauge glass assembly. Thermometer. Openings in tank provide for condensate return, vent, overflow and drain. Plugged openings provided for preheater (preheater furnished only when ordered).



**BOILER COMPOUND (water treatment) FEEDER**

See Bulletin CF-44

## DUTTON INDUCED DRAFT FAN and VENTURI STACK ASSEMBLIES

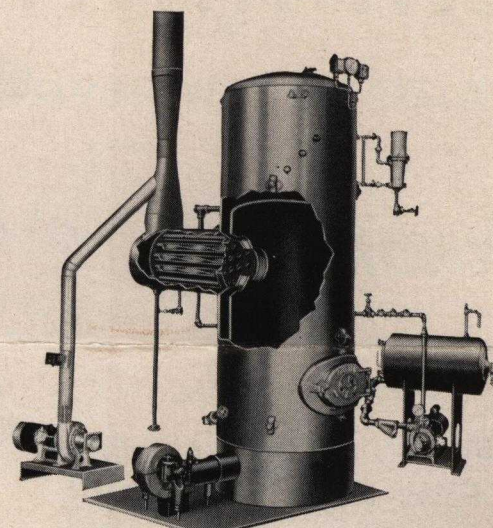


Induced Draft Stack on the Economist

Provide positive, scientific draft under all conditions for efficient, economical smokeless Boiler operation. Replace a costly chimney or smoke stack, eliminate waste of fuel and enable the boiler to develop its maximum capacity without over-firing.

### A BIG FUEL SAVER

Standard assemblies include: Motor, Fan, Breeching Venturi Section, 8 ft. of smoke pipe, and all controls for automatic operation — Available in all sizes.



Induced Draft Stack on the Economizer

D I S T R I B U T E D B Y  
**IFFRIG EQUIPMENT CO.**  
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ST. LOUIS 5, MO.  
Phone DElmar 5222

Sales Representatives Located in Principal Industrial Cities — See Telephone Directory

MANUFACTURED BY

**DUTTON BOILER DIVISION**



**Kalamazoo 6, Mich., U. S. A.**